Written Assignment 10

Introduction To Computer Systems (Carnegie Mellon University)

15-213: Introduction to Computer Systems
Written Assignment 10

This written assignment covers System I/O.

Directions

Complete the question(s) on the following pages with single paragraph answers. These questions are not meant to be particularly long! Once you are done, submit this assignment on Canvas.

Below is an example question and answer.

Q: Please describe the benefit of 2s-complement signed integers versus other approaches (such as 1s-complement or signed-magnitude).

A: For both 1s-complement and signed-magnitude representations of signed integers, we end up representing both -0 and +0, which gets inconvenient when the computer wants to test for a zero result. Additionally, in both of these representations, implementing addition/subtraction is complicated. With 2s-complement, the hardware for addition / subtraction is the same for both signed and unsigned inputs.

Grading

Each assignment will be graded in three parts. Thirty points will be assigned as follows:

1. You will receive ten points if the work you've submitted indicates a bare minimum of effort (e.g. it's not copied from a homework for another class or from the textbook).
2. You will receive ten points based on the feedback received from three of your peers.
3. You will receive ten points for providing short, constructive feedback on your peers' answers.

Due Date

This assignment is due on **Wednesday, November 18th by 11:59 PM EDT**. Remember to convert this time to the timezone you currently reside in.

Question 1

Describe the changes made to the file descriptor table and open file table on calls to the process management syscalls of **`fork`** and **`exec`**. In particular, how does the open file table know when to close a file.

Question 2

Brian writes a program which includes a print statement `printf("Hello world");`. However, when he runs the code, he does not see the line in the output. Explain what might cause this issue and why this is allowed to happen.